



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10**

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OFFICE OF
ENVIRONMENTAL CLEANUP

July 28, 2014

Mr. Bob Wyatt
NW Natural
220 NW 2nd Avenue
Portland OR 97209

sent via email only

Mr. Myron Burr
Siltronic Corporation
7200 NW Front Avenue, M/S 20
Portland, Oregon 97210-3676

Re: Response to Gasco Sediments Site – Distributed Temperature Sensing Work Plan
Dear Sirs:

This letter serves as a response to the Distributed Temperature Sensing Work Plan (Work Plan) dated June 20, 2014 for the Gasco Sediments Site which was prepared by Anchor QEA, LLC (Anchor QEA) on behalf of NW Natural. EPA's comments on the Work Plan are attached. Comments on the Work Plan were also received from the Oregon Department of Environmental Quality and the Five Tribes and were incorporated into the EPA comment set.

A revision to the work plan is required within 30 days. Pursuant to the Administrative Settlement Agreement and Order on Consent (AOC; Docket No. CERCLA 10-2009-0255), EPA shall be notified within 14 days of the proposed work. The report documenting the distributed temperature sensing (DTS) field investigation is required 45 days following completion of the data collection effort. Lastly, at least 14 days will be needed to review project specific dive safety plans based on past experience, to avoid project delays.

Please let me know if you would like to discuss this letter further, or have any questions or concerns at (206) 553-1220 or via email at sheldrake.sean@epa.gov.

Sincerely,

A handwritten signature in dark ink, appearing to read "SS", is located below the "Sincerely," text.

Sean Sheldrake, RPM

Cc:
Kristine Koch, EPA
Lance Peterson, CDM/S
Dana Bayuk, ODEQ

via email only

Enclosure: Comments on Gasco Sediments Site – Distributed Temperature Sensing Work Plan, NW Natural Gasco Site, Portland, Oregon

Dated June 20, 2014

The following are U.S Environmental Protection Agency (EPA) comments on the document titled *Gasco Sediments Site – Distributed Temperature Sensing Work Plan* (Work Plan) dated June 20, 2014 and prepared by Anchor QEA, LLC on behalf of NW Natural. In addition, we have incorporated comments received from the Oregon Department of Environmental Quality (DEQ) and the Five Tribes.¹

Specific Comments

EPA has the following specific comments related to this document.

1. Introductory paragraph and Objective, Page 1-2: The Work Plan provides confusing information regarding the objective of the proposed investigation. The last sentence in the 1st paragraph states that, “The purpose of this Work Plan is to describe a proposed field investigation for identifying areas of groundwater discharge and recharge in the Willamette River adjacent to the Gasco Sediment Site to support the evaluation of remedial technologies required by the AOC.” The last sentence in the "Objectives" section states that, “If the collected data is helpful in evaluating remedial effectiveness of different design scenarios in the target area, NW Natural may decide to propose implementation of this technology in other portions of the Project Area.”

Given the limited size of and location of the survey area proposed in the Work Plan, EPA believes the proposed temperature survey represents an initial assessment of the distributed temperature sensing (DTS) technology and its potential use in the Gasco Sediments Site. Consistent with information in the Work Plan, we further understand use of the DTS technology will support selection of seepage meter locations to further quantify groundwater flux to/from the river and for collection of transition-zone water samples for analysis. The Work Plan should confirm, clarify, or correct these understandings.

2. Objective, Page 1: The Work Plan mentions a groundwater model developed during development of the Draft Engineering Evaluation/Cost Analysis (EE/CA) Report and EPA's EE/CA comment request for the predictions of flow reversal to be further evaluated. This appears to be the basis for NW Natural's preparation of the Work Plan. However, background and supporting information regarding this model were not provided in the Draft EE/CA Report. Comments on the Draft EE/CA Report requested information regarding the model, including but not limited to model documentation to support the gradient reversal figure included in the report (see EE/CA Figure 2.3.1.1-1). To date this information has not been provided. Without information being

¹ The five tribes are the Confederated Tribes of The Grand Ronde Community of Oregon, the Nez Perce Tribe, the Confederated Tribes of Siletz Indians, the Confederated Tribes of the Umatilla Indian Reservation, and the Confederated Tribes of the Warm Springs Reservation of Oregon.

provided about the model, it is unclear what specific data needs NW Natural intends the Work Plan to address.

3. Objective Section, Page 2: The Work Plan states that if the collected data is helpful, then additional deployments of the DTS systems are envisioned in other portions of the Project Area. If known, please provide what additional portions of the Project Area are envisioned for deployment of the DTS system and how they would be selected.
4. Previous Offshore Groundwater Investigations, Page 3: Based on information provided in previous submittals, it is understood that besides GCSEEP 7F and GS-B7SM, seepage meter data were collected at other seepage meter locations in the proposed DTS test area, including GCSEEP 7B, GS-C7SM, SLSEEP 2A, SLSEEP 2C, and SLSEEP 2E. The Work Plan should also discuss these seepage meters in the context of the proposed DTS test area.
5. Previous Offshore Groundwater Investigations, page 3: An explanation should be provided of the time(s) of year the historical seepage readings are based on to provide context for the Lower Willamette Group and NW Natural seepage readings in comparison to the time of year the proposed testing will occur (see also Specific Comment 12).
6. Previous Offshore Groundwater Investigations, Page 3: Available data for Seepage Meter GS-B7SM suggests that overall the river recharges groundwater at this location. Consequently, the survey appears to focus on an area where existing conditions support “gradient reversal” from the river to groundwater. The Work Plan should provide the basis for proposing the survey area shown in Figure 3, and discuss the potential limitations of the survey area location on DTS data collection, use, and interpretation.
7. Proposed DTS Test Investigation, pages 3-4: This section should include a description of how DTS cable placement will be verified spatially. For instance, a GPS device could be used to obtain coordinates of the anchor points.
8. Proposed DTS Test Investigation, Page 3- 4: Continuous readings of water elevation/temperature in the river and in a monitoring well near the shoreline opposite the test area would appear to be useful to support analysis of the DTS measurements. A discussion in the Work Plan as to how the analysis of DTS data will be carried out would be helpful.
9. Previous Offshore Groundwater Investigations, Page 3: The Work Plan indicates that the historic seepage meter data summarized for GS-B7SM and GCSEEP 7F do not consider operation of the upland hydraulic control and containment (HC&C) system. EPA currently understands that operation of the HC&C system is ongoing at low discharge rates to maintain water flow through water treatment system piping and equipment. Based on the location of the proposed survey area, operation of the HC&C system could result in unreasonable overestimates of recharge rates from the river to groundwater. The Work Plan should discuss the status of the HC&C system, including the current testing schedule and flow rates; and how this information will be incorporated into analysis of the DTS data.

10. Proposed DTS Test Investigation, Page 3- 4: The Work Plan indicates the DTS cable will be buried in the upper 2 inches of sediment. The depth of the cable appears to be an especially important factor in collecting representative and usable data regarding the interaction(s) between groundwater and the river. Consequently, the Work Plan should fully explain the technical basis for this approach. In addition, if the DTS cable is intended to remain in the river for an extended period of time an explanation should be provided of any regular (diver?) inspections needed to ensure the cable remains buried/secured.
11. Proposed DTS Test Investigation, pages 3-4: NW Natural should include more information on how the DTS testing will be orchestrated and integrated with ongoing HC&C system testing. Example questions that should be addressed include:
- a. Will the DTS investigation be scheduled to collect data before, during, and after a particular HC&C system testing phase?
 - b. Is there a plan to integrate the DTS information with the HC&C test results, and if so, how will this be done?
 - c. Will data collected from the DTS investigation be used to calibrate the groundwater model being developed to simulate the HC&C system? Note: This information and its application to model calibration are currently not included in the Revised Final Hydraulic Source Control and Containment System Groundwater Model Update Report.
12. Proposed DTS Test Investigation, pages 3-4: EPA understands that the flux of groundwater discharge to and from the river at the Gasco site is dynamic and contingent upon groundwater recharge and river stages. EPA also recognizes the value of performing a test of the DTS system to understand its applicability for characterizing groundwater seepage offshore from the Gasco site. That said, EPA notes that more than one test of the DTS system will be necessary, particularly at a time of year that includes a high head differential data point (e.g., when upland groundwater heads are high and river stage is at seasonal low) to validate its use for verifying groundwater model results in offshore areas and potential cap design purposes. Periods of the year that seem appropriate to consider include spring (highest river stage as well as high water table), late spring/early summer (falling river stage and high water table), and late summer (lowest river stage and low water table).
13. Proposed DTS Test Investigation, Page 3-4: Figure 3 indicates the DTS technology will be used to assess groundwater discharge/recharge in an area approximately 300-feet long by 150-feet wide along the southern shoreline of the Gasco site. The Work Plan indicates that the survey area includes the locations of two seepage meters (i.e., GS-B7SM and GCSEEP 7F). However, Figure 3 of the Work Plan shows that only GS-B7SM is within the actual survey area. This observation should be included in the Work Plan.
14. Figure 2: NW Natural should explain in the text why the P7 well cluster is considered relevant for representing groundwater temperature discharging from the Gasco site and if there are other wells on the site that show more variation in groundwater temperature. Accordingly, NW Natural

should explain the significance the underlying assumption that groundwater temperatures are consistently stable as shown for the P7 cluster is to the DTS analysis and resulting conclusions. To clarify: NW Natural should explain how potential groundwater temperature variation (if seen) impacts/biases the evaluation of the DTS data and the conclusions drawn from it.

15. Figure 3: NW Natural should include the location of the P7 well cluster on this figure to show where these wells are in relation to the proposed DTS cable placement and where temperature data collection will occur.